Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (original): A high frequency heating apparatus for driving a magnetron, comprising:

a DC power supply;

a series circuit constituted by two pieces of semiconductor switching elements;

a resonant circuit in which a primary winding of a leakage transformer and a capacitor are connected, said series circuit being connected parallel to said DC power supply, and one end of said resonant circuit being connected to a center point of said series circuit and the other end of said resonant circuit being connected to one end of said DC power supply in an AC equivalent circuit;

driving means for driving said semiconductor switching elements respectively;

rectifying means connected to a secondary winding of said leakage transformer;

the magnetron connected to said rectifying means; and

a variable dead time forming circuit for varying a dead time during which said respective semiconductor

switching elements are simultaneously turned OFF in response to a switching frequency,

wherein a limitation is provided under which said dead time is not further widened when the switching frequency is increased.

Claim 2 (original): A high frequency heating apparatus for driving a magnetron, comprising:

a DC power supply;

two sets of series circuits, each of said series circuits being constituted by two pieces of semiconductor switching elements;

a resonant circuit in which a primary winding of a leakage transformer and a capacitor are connected, said two sets of series circuits being connected parallel to said DC power supply respectively, and one end of said resonant circuit being connected to a center point of said one series circuit and the other end of said resonant circuit being connected to a center point of the other series circuit;

driving means for driving said semiconductor switching elements respectively;

rectifying means connected to a secondary winding of said leakage transformer;

the magnetron connected to said rectifying means; and

a variable dead time forming circuit for varying a dead time during which said respective semiconductor switching elements are simultaneously turned OFF in response to a switching frequency,

wherein a limitation is provided under which said dead time is not further widened when the switching frequency is increased.

Claim 3 (currently amended): ~~In a~~ A high frequency heating apparatus for driving a magnetron, comprising:

a DC power supply;

a series circuit constituted by two pieces of semiconductor switching elements;

a resonant circuit in which a primary winding of a leakage transformer and a capacitor are connected, said series circuit being connected parallel to said DC power supply, and said resonant circuit being connected to one of said semiconductor switching elements in a parallel manner;

driving means for driving said semiconductor switching elements respectively;

rectifying means connected to a secondary winding of said leakage transformer; and

the magnetron connected to said rectifying means; and

a variable dead time forming circuit for varying a dead time during which said respective semiconductor

switching elements are simultaneously turned OFF in response to a switching frequency,

wherein a limitation is provided under which said dead time is not further widened when the switching frequency is increased.

Claim 4 (original): A high frequency heating apparatus as claimed in any one of claims 1 to 3, wherein said variable dead time forming circuit increases the dead time in connection with an increase of a switching frequency.

Claim 5 (original): A high frequency heating apparatus as claimed in claim 4, wherein said variable dead time forming circuit makes the dead time constant, or slightly increases the dead time at a switching frequency which is lower than, or equal to a predetermined switching frequency.

Claim 6 (original): A high frequency heating apparatus as claimed in claim 5, wherein said variable dead time forming circuit rapidly increases the dead time at a switching frequency which is higher than, or equal to a predetermined switching frequency.

Claim 7 (original): A high frequency heating apparatus as claimed in claim 5, wherein either the constant value or the slightly increased value as to said dead time is variable at the switching frequency lower than, or equal to said predetermined switching frequency is variable.

Claim 8 (original): A high frequency heating apparatus as claimed in claim 6, wherein the rapidly increased value as to said dead time is variable at the switching frequency higher than, or equal to said predetermined switching frequency is variable.

Claim 9 (currently amended): A high frequency heating apparatus as claimed in claim 5, ~~or claim 6,~~ wherein said predetermined frequency is variable.

Claim 10 (original): A high frequency heating apparatus as claimed in any one of claims 1 to 3, wherein said variable dead time forming circuit increases the dead time in a step manner in connection with an increase of a switching frequency.

Claim 11 (currently amended): A high frequency heating apparatus as claimed in any one of claims 1 to ~~10~~ 3, wherein said variable dead time forming circuit forms

the dead time based upon both a plus offset voltage and a minus offset voltage, which are changed in a first inclination which is directly proportional to an increase of the switching frequency, and also, which are changed in a second inclination from said predetermined switching frequency.

Claim 12 (currently amended): A high frequency heating apparatus as claimed in any one of claims 1 to ~~11~~ 3, wherein said variable dead time forming circuit is comprised of:

a VCC power supply;

a duty control power supply;

a first current which is changed directly proportional to a switching frequency;

a second current which flows from the predetermined switching frequency and is changed directly proportional to the switching frequency;

a third current which is produced by combining said first current with said second current and by multiplying said combined current by a predetermined coefficient; and

upper/lower potential forming means for forming an upper potential and a lower potential, which are made by adding both a plus offset voltage and a minus offset voltage which are directly proportional to said third

current to the voltage of said duty control power supply; and

said variable dead time forming circuit forms the dead time based upon said upper potential and said lower potential.

Claim 13 (original): A high frequency heating apparatus as claimed in claim 12, wherein either an input power control operation or an input current control operation is carried out by changing at least one of said voltage of the duty control power supply and said switching frequency.

Claim 14 (original): In a high frequency heating apparatus for driving a magnetron, which is arranged by a frequency control type resonant inverter circuit having at least one arm including a plurality of semiconductor switching elements; wherein:

said high frequency heating apparatus is further comprised of:

a variable dead time forming circuit for varying a dead time during which said respective semiconductor switching elements are simultaneously turned OFF in response to a switching frequency; and wherein:

said variable dead time forming circuit forms the dead time based upon both a plus offset voltage and a minus

offset voltage, which are changed in a first inclination which is directly proportional to an increase of the switching frequency, and also, which are changed in a second inclination from said predetermined switching frequency.